

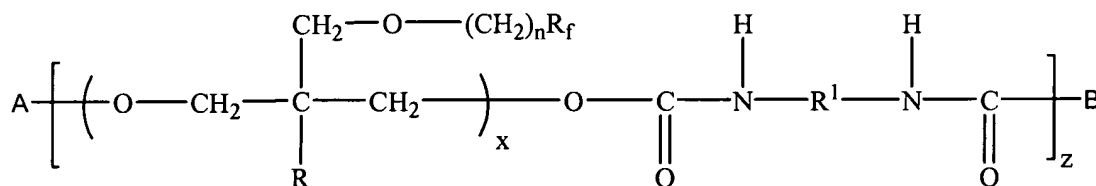
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-19 (canceled)

20 (previously submitted): A fluorinated thermoset polyurethane elastomer represented by the formula (I):



(I)

, comprising

a polyether segment; a polyisocyanate unit covalently bonded to the polyether segment; and a cross-link formed from a cross-linking agent,

wherein:

n is from 1-3;

R is independently selected from the group consisting of methyl and ethyl;

R_f is independently selected from the group consisting of perfluorinated alkyls having from 1 to about 20 carbons and oxa-perfluorinated polyethers having from about 4 to about 20 carbons;

X is a variable integer from about 10 to about 250;

Z is a variable integer from 2 to about 50

R¹ is a divalent hydrocarbyl radical;

A is an end-group selected from the group consisting of H and an isocyanate fragment; and

B is an end-group selected from the group consisting of a fragment having an OH and an isocyanate fragment.

1 21 (previously submitted): The fluorinated thermoset polyurethane elastomer of
2 claim 20, wherein the cross-linking agent is selected from the group consisting of a low
3 molecular weight polyol and a low molecular weight polyamine.

1 22 (previously submitted): The fluorinated thermoset polyurethane elastomer of
2 claim 20, wherein the crosslinking agent is selected from the group consisting of
3 trimethylolpropane, pentaerythritol, trimethylolethane, triethanolamine, 1,4-butanediamine,
4 xylene diamine, diethylenetriamine, methylene dianiline, diethanolamine and combinations
5 thereof.

1 23 (previously submitted): The fluorinated thermoset polyurethane elastomer of
2 claim 20, wherein the polyether segment is produced from at least one monomer selected from
3 the group consisting of 3-(2,2,3,3,4,4,5-heptafluorobutoxymethyl)-3-methyloxetane; 3-(2,2,2-
4 trifluoroethoxymethyl)-3-methyloxetane; 3-(3,3,4,4,5,5,6,6,7,7,8,8,8-
5 tridecafluorooctyloxymethyl)-3-methyloxetane; 3-(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-
6 heptadecafluorooctyloxymethyl)-3-methyloxetane; and 3-
7 (3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-heneicosa-fluorododecyloxymethyl)-3-
8 methyloxetane.

1 24 (previously submitted): The fluorinated thermoset polyurethane elastomer of
2 claim 20, wherein the polyisocyanate unit is produced from an isocyanate selected from the
3 group consisting of hexamethylene diisocyanate (HDI), isophorone diisocyanate (IPDI), 4,4'-
4 methylene diphenylisocyanate (MDI), polymeric MDI (Isonate[®]), toluene diisocyanates,
5 saturated MDI (HMDI), polymeric HDI (Desmodur[®] N-100 and N-3200), trimethylhexane
6 diisocyanate and combinations thereof.

1 25 (previously submitted): A method of making a fluorinated thermoset
2 polyurethane elastomer, comprising the steps of:

3 a) mixing a prepolymer with an isocyanate, a cross-linking agent, and a
4 catalyst to form a reaction mixture, wherein the prepolymer is produced from a monomer

5 selected from the group consisting of FOX (fluorinated OXetane) and FOX/THF
6 (tetrahydrofuran) ; and

7 b) curing the reaction mixture to form the thermoset polyurethane elastomer.

1 26 (previously submitted): The method of claim 25, further comprising the steps
2 of casting the reaction mixture into a mold; and degassing the cast reaction mixture after step a).

1 27 (previously submitted): The method of claim 25, wherein the mixture is cured
2 at a temperature between about 20°C to about 150°C.

1 28 (previously submitted): The method of claim 25, wherein the reaction mixture
2 is heated to about 65 °C for about 3 to about 16 hours.

1 29 (previously submitted): The method of claim 25, wherein the isocyanate is
2 selected from the group consisting of hexamethylene diisocyanate (HDI), isophorone
3 diisocyanate (IPDI), 4,4'-methylene diphenylisocyanate (MDI), polymeric MDI (Isonate[®]),
4 toluene diisocyanates, saturated MDI (HMDI), polymeric HDI (Desmodur[®] N-100 and N-3200),
5 trimethylhexane diisocyanate and combinations thereof.

1 30 (previously submitted): The method of claim 25, wherein the cross-linking
2 agent is selected from the group consisting of a low molecular weight polyol and a low
3 molecular weight polyamine.

1 31 (previously submitted): The method of claim 25, wherein said crosslinking
2 agent is selected from the group consisting of trimethylolpropane, pentaerythritol,
3 trimethylolethane, triethanolamine, 1,4-butanediamine, xylene diamine, diethylenetriamine,
4 methylene dianiline, diethanolamine and combinations thereof.

1 32 (previously submitted): The method of claim 25, wherein the catalyst is a
2 member selected from the group consisting of dibutyltin dilaurate, triethylamine, triethylene

3 diamine, triphenyl bismuth, chromium acetylacetonate, lead octonate, ferric acetylacetonate, tin
4 octanoate and combinations thereof.

1 33 (previously submitted): A method of making a fluorinated thermoset
2 polyurethane elastomer, comprising the steps of:

3 a) mixing a prepolymer with an isocyanate, a cross-linking agent, a catalyst
4 and a solvent to form a reaction mixture, wherein the prepolymer is produced from a monomer
5 selected from the group consisting of FOX (fluorinated OXetane) and FOX/THF
6 (tetrahydrofuran); and

7 b) curing the reaction mixture to form the thermoset polyurethane elastomer.

1 34 (previously submitted): The method of claim 33, further comprising the step
2 of applying the reaction mixture onto a surface or into a cavity after step a).

1 35 (previously submitted): The method of claim 33, wherein the curing is
2 performed at a temperature between about 20°C to about 150°C.

1 36 (previously submitted): The method of claim 33, wherein the isocyanate is
2 selected from the group consisting of hexamethylene diisocyanate (HDI), isophorone
3 diisocyanate (IPDI), 4,4'-methylene diphenylisocyanate (MDI), polymeric MDI (Isonate[®]),
4 toluene diisocyanates, saturated MDI (HMDI), polymeric HDI (Desmodur[®] N-100 and N-3200),
5 trimethylhexane diisocyanate and combinations thereof.

1 37 (previously submitted): The method of claim 33, wherein the cross-linking
2 agent is selected from the group consisting of a low molecular weight polyol and a low
3 molecular weight polyamines.

1 38 (previously submitted): The method of claim 33, wherein said crosslinking
2 agent is selected from the group consisting of trimethylolpropane, pentaerythritol,
3 trimethylolethane, triethanolamine, 1,4-butanediamine, xylene diamine, diethylenetriamine,
4 methylene dianiline, diethanolamine and combinations thereof.

1 39 (previously submitted): The method of claim 33, wherein the catalyst is a
2 member selected from the group consisting of dibutyltin dilaurate, triethylamine, triethylene
3 diamine, triphenyl bismuth, chromium acetylacetonate, lead octonate, ferric acetylacetonate, tin
4 octanoate and combinations thereof.

1 40 (previously submitted): The method of claim 33, wherein the reaction mixture
2 is heated to about 65°C for about 3 to about 16 hours.

1 41 (previously submitted): The method of claim 33, wherein the solvent is
2 selected from the group consisting of tetrahydrofuran (THF), carbon tetrachloride, chloroform,
3 trichloroethylene, chlorobenzene, ethyl bromide, dichloroethane, fluorinated solvents, sulfur
4 dioxide, hexanes, petroleum ether, toluene, dioxane, xylene, methylene chloride, Freon and
5 mixtures thereof.